TRANSPORTATION DATA COLLECTION IN THE GREATER GOLDEN HORSESHOE, CANADA

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Two objectives

- Provide a comprehensive framework for establishing transportation data needs in the Greater Golden Horseshoe (Toronto Area)

- Provide advice for the future conduct of the Toronto household travel survey
  - Identify challenges
  - Strategies to address challenges

Policy Context: Data needed to assess more than just road infrastructure

- GHG emissions and air quality
- major transit investment
- transportation pricing
- cost of fuel
- alternate fuels and electric autos
- changing demographics
- transportation impacts on safety/health
- changing regional economy
- growth of non-work/school travel

Toronto Household Travel Survey (TTS)

- Telephone interview survey
- Repeated cross-section every 5 years since 1986
- Collects household trips for a fall weekday
- Sample frame: land-line telephone listing
- Proxy reporting
- Very large sample size has led to tradeoffs in survey content
  - (e.g. travel of children <11, income, parking cost, weekends, business travel, discretionary walk/bike trips)

Study Area: Greater Golden Horseshoe
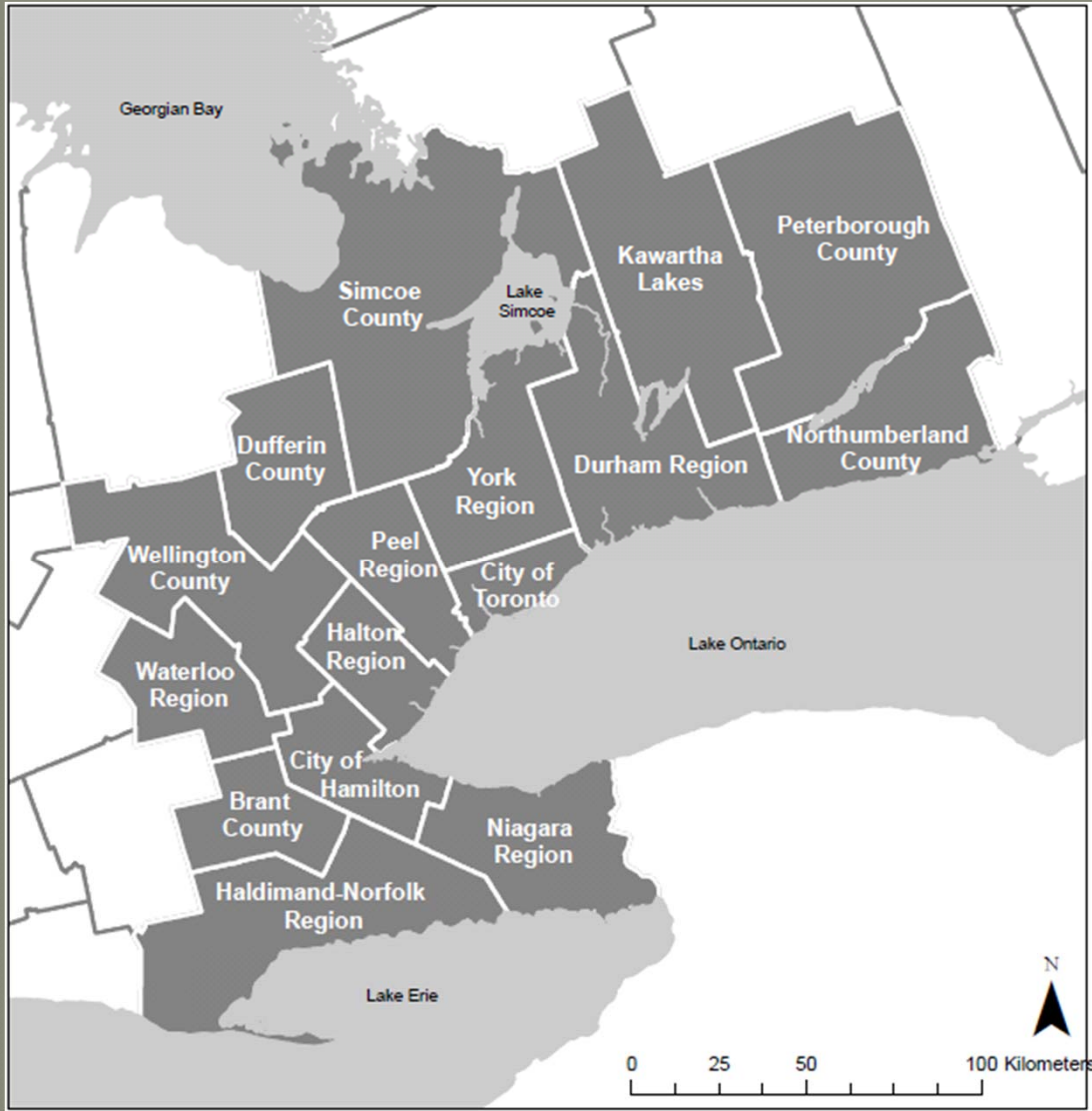
- 8 million residents

- TTS Household travel survey: 5.2% of households surveyed
  - 150,000 hhlds
  - 400,000 persons
  - 865,000 trips

Funding Partners

- MTO
- TTC
- GO Transit
- City of Toronto
- Region of Durham
- Region of York
- Region of Peel
- Region of Halton
- City of Hamilton
- Region of Niagara
- Region of Waterloo

- City of Guelph
- County of Wellington
- Town of Orangeville
- County of Dufferin
- City of Barrie
- County of Simcoe
- City of Kawartha Lakes
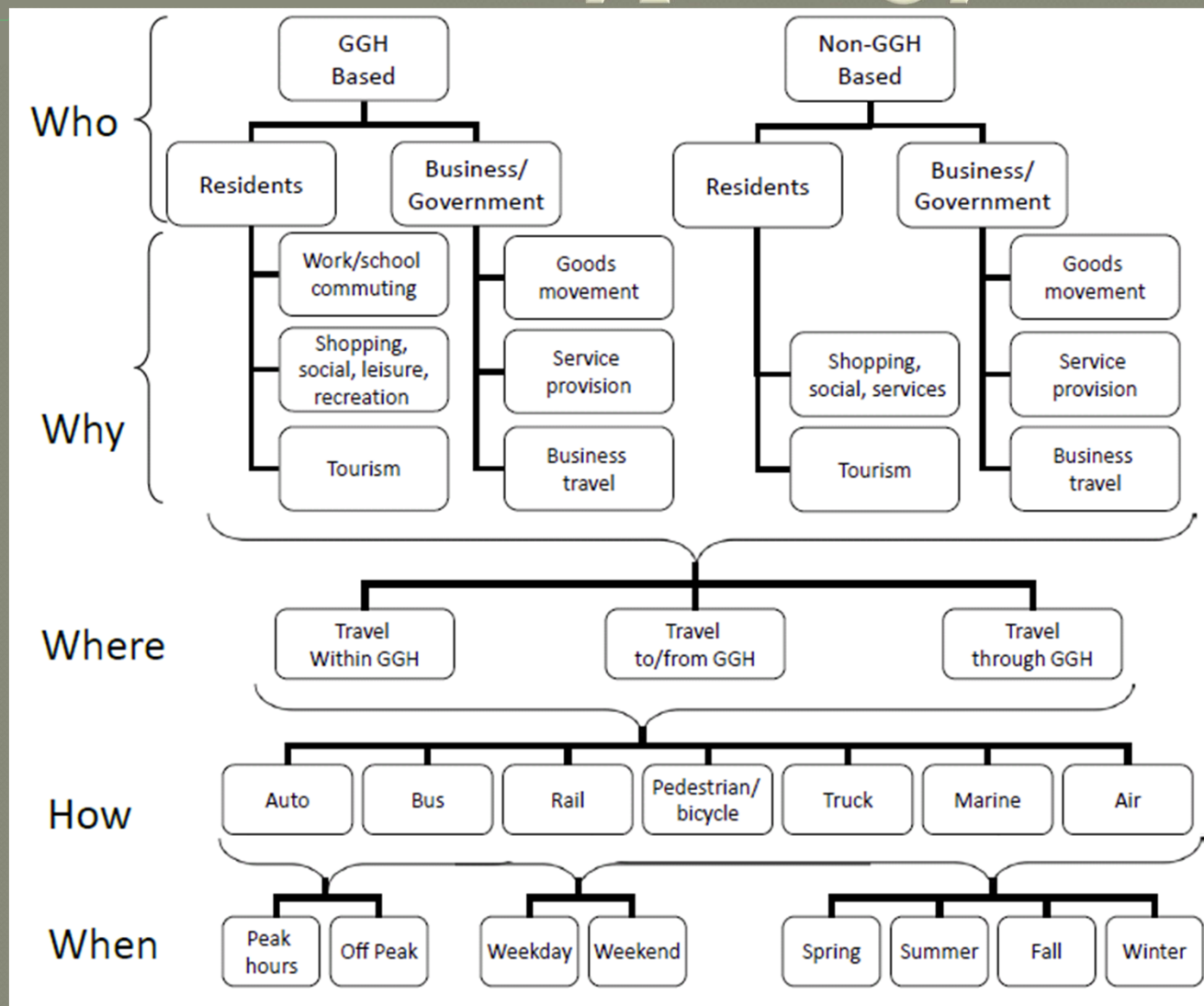- City of Peterborough
- County of Peterborough
- City of Brantford

Other major established data collection programs

- Traffic count program
- Roadside Commercial Vehicle Survey
  - (primarily truck travel on the freeway system)
- Transit ridership surveys
- Private sector data
  - Rail operators
  - Airport Authority
  - Truck fleet management firms

A typology of travel

Identifying data gaps : Travel generated by Area residents and businesses

Traveller	Travel purpose	Trip Location	Mode of Transportation						
			Auto	Bus	Rail	Pedestrian/ bicycle	Truck	Marine	Air
GGH residents	Work/school commuting	Within GGH	TTS*	Transit Ridership surveys					
		To/from GGH							
	Shopping, social, recreation and leisure	Within GGH		Transit Ridership surveys					
		To/from GGH							
	Tourism	Within GGH		Transit Ridership surveys					
		To/from GGH							GTAA
GGH businesses and government organizations	Goods movement	Within GGH (pickup/delivery)							
		To/from (long-haul)			CN / CP		CVS-NRS	Port operators	GTAA
	Service provision (plumbers, telephone cable repair, emergency services)	Within GGH							
		To/from GGH					CVS-NRS		
	Business travel other than commuting, goods movement and service provision (eg business meetings)	Within GGH	TTS*	Transit Ridership surveys					
		To/from GGH							GTAA

- Gaps
- Data collected privately, only available for limited uses
- Adequate Data
- Not important categories

Identifying data gaps : Travel generated by Out-of-Area residents and businesses

Traveller	Travel purpose	Trip Location	Mode of Transportation						
			Auto	Bus	Rail	Pedestrian/ bicycle	Truck	Marine	Air
Non-GGH residents	Tourism, shopping, social, services	Within GGH		Transit Ridership surveys					
		To/from GGH							GTAA
		Through GGH							
Non-GGH businesses and government organizations	Goods movement	Within GGH							
		To/from GGH			CN / CP		CVS-NRS	Port operators	GTAA
		Through GGH							
	Service provision	Within GGH							
		To/from GGH					CVS-NRS		
		Through GGH							
	Business travel	Within GGH		Transit Ridership surveys					
		To/from GGH							GTAA
		Through GGH							

- Gaps
- Data collected privately, only available for limited uses
- Adequate Data
- Not important categories

Assessing priorities for new data collection

- Involved assessing each transportation submarket:

  - Amount of travel occurring;

  - Degree of impacts;

  - Potential influence of public policy interventions;

  - The extent to which quality information can be cost-effectively gathered to link policy interventions to outcomes.

Prioritized list of new data collection efforts

1) Urban goods and service movements by auto and truck

2) Economic elements of personal travel (income, parking/travel cost)

3) Household vehicle type and age

4) Walk and bike trips to/from non-work and non-school trip purposes

5) Travel of children under the age of 11

6) Weekend travel and seasonal variations

7) Tourist and intercity business travel

Toronto household travel survey
Major challenges

- **Sample selection challenges:**
  - Growing number of cell-phone only households
  - Limited databases of cell-phone users
  - Unlisted numbers
  - Voice over Internet Protocol (allows residents to keep their local phone number, but move out of the region and vice versa)

- **Contact and recruitment challenges:**
  - Recruitment letter not reaching apartment dwellers
  - Respondents are home less often and are screening calls
  - Overall reduction in response rates over time

- **Survey reporting challenges**
  - Proxy reporting – increased under-reporting of complex trip chains of non-respondents

Proposed strategies to address challenges

- ## Dual frame sampling
  - Obtain a complete list of residential properties (Canada Post, municipal taxation records, census)
  - Match list against the telephone directory listing
  - Send survey package to residual households

- ## Multi-modal survey
  - Internet, mailback, telephone interview, cell-phone interview, GPS with prompted recall

Our recommendations
Re: New data collection efforts

1) Continue the major established data collection systems (household travel survey, roadside survey, count programs, transit surveys)

2) Strategically expand data collection, in priority sequence

3) Develop ongoing research capacity for designing and testing new survey methods

Our recommendations
Re: Household travel survey

4) Develop an internet version of the travel survey, such that respondents have 2 survey modes to choose from (done in 2011)

5) Use a dual frame sampling approach

6) Conduct a supplementary GPS survey alongside the travel survey to identify instrument bias

7) Leave major elements of the travel survey unchanged to allow for trend analysis

Question / Reactions